

A METHOD TO USE ACOUSTIC SIGNALS FOR COMPUTER COMMUNICATIONS

RELATED APPLICATIONS

This application is a 119(e) of US provisional applications 60/115,231, filed January 8, 1999 (~~attorney docket 100/00798~~), 60/122,687, filed March 3, 1999 (~~attorney docket 100/00809~~), 60/143,220, filed July, 9, 1999 (~~attorney docket 100/01200~~), 60/145,342, filed July 23, 1999 (~~attorney docket 100/01124~~) and ^{60/153,858} ~~an application titled "Card for Interaction with a Computer"~~, filed September 14, 1999 ^{US application 09/757,355, filed March 14, 2001,} and having attorney docket 100/01300. This application is also a continuation-in-part of PCT applications PCT/IL99/00470, filed August 27, 1999 and PCT application PCT/IL99/00506, filed September 16, 1999, both filed in the Israel receiving office by applicant Comsense Technologies Ltd. and designating the US. The disclosures of all of these applications are incorporated herein by reference.

FIELD OF INVENTION

The present invention relates generally to method of interaction with a computer and especially to methods that use acoustic signals for such communications.

BACKGROUND OF THE INVENTION

Computer network components that communicate using RF radiation, wires or IR radiation are well known. In addition, some home appliances are controlled using an ultrasonic remote control. Other types of dedicated ultrasonic acoustic links are also known.

However, such dedicated communication mechanisms require that the computer network components have installed thereon specialized communication hardware. Installing such hardware on an existing computer may be expensive and/or problematic. Further, some electronic and/or computer embedded devices, for example cellular telephones may be "sealed" products, to which it is impossible to add internal components.

PCT publications WO96/10880, WO94/17498, WO93/21720 and WO93/11619, the disclosures of which are incorporated herein by reference, describe an electronic device which transmits coded information to a microphone of a telephone using a DTMF-like encoding scheme. A WWW page addressed "http://www.encotone.com/html/tech_def.html", available on February 1, 1999 and predated, suggests using such a device to transmit audible DTMF-like tones to a personal computer using the computer's sound card.

Two way communications using audible DTMF-like tones, between a smart card and a telephone communication system is described in US patent 5,583,933, the disclosure of which is incorporated herein by reference.

SUMMARY OF THE INVENTION

One object of some preferred embodiments of the invention is to simplify interaction between electronic devices by removing a common requirement of installing dedicated